Notes on the Habits of some Coleopterous Larvæ and Pupæ.

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The following observations are few in number, and comprise only, such as have been made on larvae and pupae taken during the present season.

Researches into the habits of the larvæ of Colcoptera are attended with considerable difficulty, the conditions required for their existence and development being in many instances so peculiar and so varied, that it is only after repeated failures, that one can attempt to rear them with any reasonable hope of success. Stimulated by the successes of many European entomologists, and by the hope of rearing some valuable insects, I have been induced to enter the field, and so far my attempts have met with much encouragement. Many observations have been made which have not sufficient connection to warrant their publication, these will be reserved for some future article. Descriptions of the larvæ will not be given at present, but will be reserved, until either the author shall have completed their study, or some one already conversant with the subject will undertake their description.

Dermestes l a r d a r i u s, Linné.—This insect is found wherever dried or smoked meat is stored, and when found it generally exists in considerable abundance. The larva is covered with bristly hairs. It is usually seen creeping on the surface of the meat. For food it prefers such as contains much fat and connective tissue, seldom attacking the muscular portions when the others exist. This larva does not often bury itself in its food till about the time of its assuming the pupa state. The insect remains in the latter condition, for a period varying from three or four days to a week or even more, depending principally upon the warmth of the locality.

Anthrenus destructor, *Mels.*—To entomologists, one locality for this insect is too well known. It is often taken in flight in the dusk of the evening. Numerous specimens have also been obtained from flowers.

I have lately obtained many specimens in all stages of development, and have had opportunities for noting the time required for all its transformations. The egg is deposited in any fissures that may exist in a specimen, and after development, penetrates toward the centre, in which it remains until perfectly developed, making its presence known by some dust around the pin, if the specimen be an insect.

It requires nearly two weeks for the larva to arrive at a state of growth sufficient for the assumption of the pupa. During this time the larvae show great powers of destruction, several of them rendering a large specimen perfectly valueless. In the pupa, it remains about four or five days.

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Ptilodaetyla e l a t e r i n a, *Illig.*—One specimen of the perfect insect, and many pupe, together with one larva, were taken by myself. They were all found in one log, which was rather moist and rotten, its texture being so destroyed that it was impossible to distinguish the species, though it was probably Oak. The pupe were concealed by a thin layer of the wood, and were on the side adjacent the earth. The identity of the pupæ was established by raising several, and by means of the east larva skin which adhered to a pupa, I was enable to identify the larva.

Sinoxylon — A short time since 1 received from Mr. George Newman some fragments of a rustic ornament made from branches of trees To all appearances there was nothing wrong, though on breaking the pieces, they were found to be completely riddled by this insect. Its borings were in a very fine powder. The time required for its transformations, has not been observed.

The specimens raised by me were referred to Dr. Leconte, who is of the opinion, that this insect is undescribed, should further investigation prove it to be a native species.

Sinoxylon basilare, *Nay.*—Inhabits hickory wood in which it bores to a considerable depth, preferring the hard central wood. Its borings are very fine, and firmly compressed. No special preparation appears to be made when about to assume the pupa state. After full development is attained, it turns almost at a right angle and emerges through a circular opening in the bark of the hickory. The transformation from the larva through the pupa into the perfect state is made in a very short space of time.

Anobium paniceum, *Fabr.*—The larva of this insect is the great destroyer of almost every root or seed used by man. It is known to the druggist as the "worm," and it spares nothing in its ravages, the nourishing oatmeal, the bitter Columbo and Gentian, and the poisonous Nux Vomica, suffer alike. It has been known to perforate sheet lead.

I have lately taken it in considerable abundance boring between sheets of cork, such as are used for cabinets, in which situation it makes tortuous canals, ruining the cork almost entirely.

It remains in pupa about four or five days.

Clytus erythrocephalus, Oliz.— This insect I raised from the logs with the *Sinoxylon basilare*. Its borings are much coarser, and its preference is for the softer portions of the wood. Its course outwardly after having assumed the perfect state is gradual, and not at a right angle, as is the case with the *Sinoxylon*.

Arhopalus pietus, Drury.—Also inhabits the Hickory. Its excavations are immediately subcortical. Unlike the CIytus, its course is not in a line, but it bores in every direction, making extensive excavations.

Its borings are coarse and saw-dust like, and are packed with considerable firmness. When about to become pupa, the larva bores for a slight depth into the wood, and for a distance of about three inches. The aperture is closed with some very coarse splinter-like borings, and after having turned its head in the direction of its previous subcortical dwelling, it undergoes its transformation, and requires about two and sometimes three weeks for becoming a perfect insect.

Rhagium lineatum, Olir.—Inhabits pine stumps, under the bark of which it lives. It may be taken in abundance in early spring.

I have never observed the larva, though when about to transform, it places circularly around itself coarse borings, forming a sort of nest.

The time required for development is not known.

Leptura nitens, *Forst.*— The larva and pupa of this insect, inhabit the Black Oak. I have never observed either.

Callidium variabile, *Linn.*— The larva of this insect may be found in early spring, under the bark of White Oak logs and stumps.

Its habits are similar to the *Arhopalus*. The pupa requires a week or ten days for becoming a perfect insect.

Callidium v a r i u m , *Fabr.*— Is found with the preceding. The larva and pupe resemble that of the *C. variabile* very closely.

Synchroa punctata, Newm .--- The pupa only, has been observed.

One specimen of the imago with four pupe, were taken by myself during the third week of May. They live in rotten Oak stumps, thriving best in the White. The pupa requires about one week to perfect itself.

Centronopus calcaratus, Fabr.- Inhabits Black Oak stumps.

The larva grows with rapidity. It remains in pupa two weeks, and requires four or five days to gain its dark color.

Centronopus anthracinus, *Knoch.*— May be taken in company with the latter insect. The larvæ and pupæ of both species resemble each other very closely. The time required for the development of this species is rather shorter than that of *C. calcavatus*.